

## 5. BREEAM

5.1 The Building Research Establishment Environmental Assessment Method (known as BREEAM) is an independently accredited scheme that tests the sustainability of a development. Using BREEAM, buildings are given a score which provides an indication of their environmental impact. Issues considered include management, health and wellbeing, energy, transport, water, materials and waste, land use and ecology and pollution in a very similar manner to the CSH.

### CASE STUDY: White Willows, Dyche Road, Jordanthorpe, Sheffield

Through close cooperation between the client, contractor and design team, the Extra Care Housing scheme's intention has been to incorporate an 'Excellent' BREEAM Multi Residence rating. The main sustainable design and construction features include the use of natural light within an orientated building with solar gain and a night cooling system reducing service input. An increase in insulation, efficient use of under floor heating and photovoltaic panels all

helped to maximise and retain energy input. A 'green' sedum roof compliment the photovoltaic panels, increasing insulation, helping store water run off and attracting wildlife to the whole site. Harvested water is held in a reservoir incorporated into the sanitation of the building while also being integrated into the 'fire engineering' operation which uses a fire sprinkler and misting system.

*Designed by West & Machell Architects for South Yorkshire Housing Association*



**Table 5.1: Summary of BREEAM categories and main issues**

**Management**

- Commissioning
- Construction site impacts
- Security

**Health and wellbeing**

- Daylight
- Occupational thermal comfort
- Acoustics
- Indoor air and water quality
- Lighting

**Energy**

- CO<sub>2</sub> emissions
- Low or zero carbon technologies
- Energy sub metering
- Energy efficient building systems

**Transport**

- Public transport network connectivity
- Pedestrian and cyclist facilities
- Access to amenities
- Travel plans and information

**Water**

- Water consumption
- Leak detection
- Water reuse and recycling

**Waste**

- Construction waste
- Recycled aggregates
- Recycling facilities

**Pollution**

- Refrigerant use and leakage
- Flood risk
- NOx emissions
- Watercourse pollution
- External light and noise pollution

**Land use and ecology**

- Site selection
- Protection of ecological features
- Mitigation/enhancement of ecological value

**Materials**

- Embodied life cycle impact of materials
- Materials reuse
- Responsible sourcing
- Robustness

**Innovation**

- Exemplary performance levels
- Use of BREEAM Accredited Professionals
- New technologies and building processes



**CASE STUDY: City House**

The 14 storey City House is located in the heart of Leeds, directly above the train station. The developer, Bruntwood, is targeting a BREEAM 'Excellent' rating for a re-development of the building that aspires to regenerate the internal

space to provide flexible office accommodation for businesses of all sizes while ensuring the protection of the buildings landmark status through a vibrant re-imagining of the structures' external appearance.

*Designed by Sheppard Robson for Bruntwood*

More information is provided in Table 5.1. BREEAM versions are available for homes (now replaced by the CSH), offices, retail, industrial units, schools and health buildings, and other buildings are covered by bespoke assessments.<sup>8</sup>

5.2 In a similar manner to the CSH, BREEAM is based on a system of credits and developers must obtain a certain number of points to achieve a specific rating: 'Pass', 'Good', 'Very Good', 'Excellent' or 'Outstanding'. The operation of BREEAM is overseen by an independent Sustainability Board, representing a wide cross-section of construction industry stakeholders.

<sup>8</sup> BRE Global is developing a new standard to enable the sustainable refurbishment of existing housing titled BREEAM Domestic Refurbishment. The standard aims to provide a single standard in order to assess the environmental performance of housing refurbishment works



*"We have found the discipline of undertaking the BREEAM assessment to be helpful to the project delivery team and not difficult to satisfy given the background and approach to the student residential concept, which is based on sustainable principles."*

**John Wybor**, Director,  
GWP Architecture

#### CASE STUDY: Rose Bowl

Commissioned by a local university, this aspirational city centre new build educational development had clear leadership goals to meet tough BREEAM 'Excellent' credentials and be a design landmark educational building with lecture halls and conference facilities.

Meeting the BREEAM criteria, this building has lowered energy requirements, uses highly efficient cooling, and low water use fittings and rainwater harvesting /grey water use for WCs.

*Designed by Shepherd Robson for Leeds Metropolitan University*

*Other Case Studies to refer to:*  
– Innovate p13  
– Town Centre House p75  
– Fearn's Wharf p84

- 5.3 The BREEAM scheme can be used to assess the environmental impacts arising as a result of an individual building development (including external site areas) at the following stages:
  1. Design Stage (DS) - leading to an Interim BREEAM Certificate.
  2. Post-Construction Stage (PCS) – leading to a Final BREEAM Certificate.
- 5.4 For more information on BREEAM: BRE Environmental Assessment Method see [www.breeam.org](http://www.breeam.org)



#### CASE STUDY: Carnegie Village

An aspirational and innovation-based student accommodation development (480 rooms) with a target of BREEAM 'Excellent' and a Passivhaus design for one of the blocks of highly insulated flats that will be monitored by the University's Department of Building Studies. Built with timber frame and pre-fabricated pods they aimed for a very low waste construction site, with 13% recycled material content in construction materials. The aim was to deliver a landmark scheme for low

carbon and energy efficient student accommodation, incorporating motion controlled lights, rainwater harvesting, solar thermal heating, water saving taps, heat recovery ventilation systems, sustainable sourced materials and A+ rated white goods. The construction company was recognised for its high standard of Corporate Social Responsibility. Solar thermal collectors generate up to 70% of each building's annual hot water requirements and also provide central heating support.

*Designed by GWP Architects for Leeds Metropolitan University*



*Designed by Fielden Clegg Bradley Studios for Downing and Leeds Metropolitan University*

#### CASE STUDY: Broadcasting Place

A well considered sustainable approach with six key design principles of flexibility, orientation and glazing angles, use of natural light, 10% target for use of renewable energy, stringent acoustic requirements with effective mechanical ventilation, and a car free, bike friendly emphasis, with sheltered cycle storage and changing and shower facilities. The building has achieved a BREEAM 'Very Good' rating, with at least 10% of the university's energy use from renewable sources by introducing a ground source heat pump and a flexible design to allow for a variety of uses and adaptable enough to ensure it can be used effectively over a long lifespan.

